Appendix F

Air Dispersion Modeling Protocol/IDEQ Protocol Approval

STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY

1410 NORTH HILTON, BOISE, ID 83706 · (208) 373-0502

C. L. "BUTCH" OTTER, GOVERNOR
TONI HARDESTY, DIRECTOR

July 25, 2007

Rick McCormick
Project Engineer
CH2M HILL—Boise Office

RE: Modeling Protocol for the Treasure Valley Forest Products Facility Located in Mountain Home, Idaho

Dear Rick:

DEQ received your dispersion modeling protocol on July 2, 2007. A revised protocol was received on July 13, 2007. The modeling protocol was submitted on behalf of Treasure Valley Forest Products (TVFP). The modeling protocol proposes methods and data for use in the ambient impact analyses of a 15-Day Pre-Permit to Construct application for a new sawmill with kiln drying capabilities in Mountain Home, Idaho.

The modeling protocol has been reviewed and DEQ has the following comments:

- Comment 1: Based on the modeling protocol DEQ assumes all existing and proposed emissions sources will be considered for the preliminary analyses, and, if applicable, the full impact analyses for the compliance demonstration with the National Ambient Air Quality Standards (NAAQS).

  Provide a discussion of the applicability analysis in the permit application for the compliance demonstration for toxic air pollutants (TAPs).

- Comment 2: The application should provide documentation and justification for stack parameters used in the modeling analyses, clearly showing how stack gas temperatures and flow rates were estimated. Include calculations and assumptions. In most instances, applicants should use typical parameters, not maximum temperatures and flow rates.

  The exhaust parameters and modeling approach for sources that are "to be determined" will be reviewed during the initial 15-day period following submittal of the permit application prior to issuance of pre-permit construction authorization or denial.

- Comment 3: The proposed receptor grid appears reasonable. However, it is the applicant's responsibility to use a sufficiently tight receptor network such that the maximum modeled concentration is reasonably resolved. If DEQ conducts verification modeling analyses with a tighter receptor grid and compliance with standards is no longer demonstrated, the permit will be denied.

- Comment 4: When modeling carcinogenic TAPs, the applicant may use a 5-year meteorological data set, using the period average concentration, rather than five separate 1-year data sets.

- Comment 5: DEQ determined the following default background concentrations for small town/suburban areas are most appropriate for the site location in Mountain Home: PM_{10} 24-hr = 81 $\mu g/m^3$; PM_{10} annual = 27 $\mu g/m^3$; CO 1-hr = 10,200 $\mu g/m^3$; CO 8-hr = 3,400 $\mu g/m^3$; NO_2 annual = 32 $\mu g/m^3$; SO_2 3-hr = 42 $\mu g/m^3$; SO_2 24-hr = 26 $\mu g/m^3$; SO_2 annual = 8 $\mu g/m^3$; and, Pb quarterly = 0.03 $\mu g/m^3$.

- Comment 6: Provide a complete, scaled facility plot plan that includes the locations of all emissions sources and buildings with the permit application. All building dimensions must be included either in the plot plan or in a table.

- Comment 7: Please include all modeling files, including the BPIP input file and the modeling runs using the coarse grid.

- Comment 8: Provide a detailed description of the determination of the ambient air boundary. The facility must prevent public access inside the ambient air boundary using methods described in the *Idaho Air Modeling Guideline*.

- Comment 9: DEQ permitting staff have not reviewed the emission inventory submitted in the modeling protocol for completeness and accuracy. Review will be conducted after the official permit application is received by DEQ.

DEQ's modeling staff considers the submitted dispersion modeling protocol, with resolution of the additional items noted above, to be approved. It should be noted, however, that the approval of this modeling protocol is not meant to imply approval of a completed dispersion modeling analysis. Please refer to the *State of Idaho Air Quality Modeling Guideline*, which is available on the Internet at http://www.deq.state.id.us/air/permits_forms/permitting/modeling_guideline.pdf, for further guidance.

To ensure a complete and timely review of the final analysis, our modeling staff requests that electronic copies of all modeling input and output files (including BPIP, raw meteorological data files, AERMET input and output files, and AERMAP input and output files) are submitted with an analysis report if a different dataset than provided to you by DEQ is used for this project.. If you have any further questions or comments, please contact me at (208) 373-0536.

Sincerely,

Darrin Mehr
Air Quality Analyst
Idaho Department of Environmental Quality

Air Dispersion Modeling Protocol for Treasure Valley Forest Products Mountain Home, Idaho Facility

(15-dayPermit Construction Approval)

Prepared for

Treasure Valley Forest Products

Submitted to:

Idaho Department of Environmental Quality

July 2007

Prepared By:

CH2MHILL

Brief Project Background

Treasure Valley Forest Products (TVFP) is in the process of preparing a 15-day Permit to Construct (PTC) for the TVFP Mountain Home Facility in Mountain Home, Idaho. The facility is located approximately 1/4-mile west of North Main Street (Highway 30) in the western portion of Mountain Home in Elmore Country. This application follows the requirements for Pre-Permit construction in accordance with the *Rules for the Control of Air Pollution in Idaho* (IDAPA) 58.01.01.213.02.

An air quality impact analysis will be performed in support of the pre-permit construction approval per IDAPA 58.01.01.213. Idaho regulation requires the facility applying for a PTC to demonstrate compliance with the National Ambient Air Quality Standards (NAAQS) and with Toxic Air Pollutant (TAP) standards (IDAPA 58.01.01.210).

This air dispersion modeling protocol is being submitted to the Idaho Department of Environmental Quality (IDEQ) for approval prior to the initiation of the air quality modeling for the TVFP Mountain Home facility. This document summarizes the modeling methodology that will be used to evaluate the facility's impacts to air quality with respect to criteria and toxic air pollutants. It has been prepared based on the U.S. Environmental Protection Agency (EPA) *Guidelines on Air Quality Models* (GAQM), and the *State of Idaho Air Quality Modeling Guideline* (ID AQ-01, December 31, 2002).

Sources

Process Description

Emissions sources from both the existing facility structures as well as the new proposed Planer/Pellet Mill will be included in this modeling analysis. The facility includes several structures situated on approximately13 acres (Figure 1). A scaled site plan is included in Figure 2. There is no significantly elevated terrain in the near vicinity of the proposed facility.

The TVFP facility will primarily receive rough cut lumber consisting of pine and Douglas fir for processing into dimensional lumber. Green debarked logs may also be periodically transported to the Mountain Home facility by truck from the Boise Yamhill facility when there is a large order to dry logs for log home construction. The facility contains two lumber drying kilns. Lumber Kiln No. 1 consists of a 1,500 square foot building heated to 130°F with natural gas fired heaters and, if necessary, a 70 horsepower natural gas fired steam boiler. Lumber Kiln No. 2 is used to primarily dry rough cut lumber. This structure consists of one 2,700 square foot building divided into a west kiln and east kiln, each of which is heated ranging from 130 to 145°F by way of a 250 horsepower natural gas fired steam boiler. After drying, rough cut lumber is removed from the kiln, and moved to the Planer

Mill. The lumber is planed to the desired smoothness and dimensions. The wood shavings are routed from the Planer Mill to the Pellet Mill for processing wood pellets.

Lumber Kiln No. 1

Rough cut lumber as well as green debarked logs may be dried at any one time in a 1,500 square foot kiln building heated to 130°F by two natural gas room heaters and a natural gas boiler. The lumber kiln may process up to 40,000 board feet per day (bd-ft/day) and 10,400,000 bd-ft/yr.

Large fans circulate air inside the kiln. The lumber kiln roof is fitted with eight vents. At anytime, four of the vents are functioning as air supply vents and four are operating as exhaust vents. The size of each vent is approximately 20 x 20 square inches. The vent configuration is changed periodically in order to change the direction of air flow inside the kiln and facilitate drying. Emissions from the kiln include PM_{10}, volatile organic compounds (VOCs), and hazardous air pollutants (HAPs).

Lumber Kiln No. 1 Natural Gas Boiler

A 70 HP Cleaver-Brooks boiler is used to generate steam used in radiators to heat the Lumber Drying Kiln No. 1 to supplement the two natural gas room heaters in times where additional heating is needed. The rated heat input capacity of the Cleaver-Brooks boiler is 2.343 MMBtu/hr and is fueled exclusively by natural gas.

Lumber Kiln No. 1 Natural Gas Heaters

Two small natural gas fired room heaters each with a rated input capacity of 145,000 Btu/hr are used in conjunction with a 70 Hp steam boiler to dry the rough cut lumber or green debarked logs in Lumber Kiln No. 1. Both heaters were installed inside the roof ceiling in Kiln No. 1 sometime in 2005. The emissions from these two natural gas heaters are included in the facility-wide emissions summary but are insignificant compared to the facility-wide aggregate. In addition, these heaters are not included in the facility-wide model because they satisfy the exempted source criteria for fuel burning equipment per IDAPA 58.01.01.222.02.c.

Lumber Kiln No. 2

Rough cut lumber is dried in a 2,700 square foot kiln building divided into two rooms (east and west kilns) and heated ranging from 130 to 145°F with steam radiators. Large fans circulate air inside the kiln. The kiln has a capacity to process green lumber at a rate of 50,000 bd-ft/day and 13,000,000 bd-ft/year.

The lumber kiln roof is fitted with ten vents. At any time, five of the vents are functioning as air supply vents and five are operating as exhaust vents. The size of each vent is approximately 20 x 20 square inches. The vent configuration is changed periodically in

order to change the direction of air flow inside the kiln and facilitate drying. Emissions from the kiln include PM_{10}, volatile organic compounds (VOCs), and hazardous air pollutants (HAPs).

Lumber Kiln No. 2 Natural Gas Boiler

A 250 Hp Kewanee boiler generates steam used in radiators to dry green lumber in Kiln No. 2. The rated heat input capacity of the Kewanee boiler is 8.369 MMBtu/hr and is fueled exclusively by natural gas.

Planer Mill Baghouse

The Planer Mill receives rough cut lumber after kiln drying is complete. The planer is used to finish rough-cut lumber into dimensional lumber. Planer shaving activities are conducted inside the Planer Mill building. Shavings and other wood residues produced in the planer are drawn into a chip bin. Wood shavings are conveyed from the chip bin into a shredder. The shredded shavings are screened and drawn into a cyclone. The wood waste fines are collected by baghouse outside the planer mill building. The Planer Mill baghouse is a control point for collecting the planer mill wood waste fines.

TVFP estimates the maximum planer throughput at 50,000 bd-ft/day or 13,000,000 bd-ft of lumber per year.

The larger screened shaving are drawn through the cyclone and conveyed inside the building to the Pellet Mill operations for processing wood pellets.

Pellet Mill Cyclone

The Pellet Mill receives two source streams of wood shavings. One source of wood shavings is from the Planer Mill. Screened wood shaving are conveyed from the Planer Mill to the Pellet Mill hammermill.

The second source consists of either wood shavings or sawdust loaded into a hopper (outside the building) from 3-sided storage bins. The loaded material is transferred by enclosed conveyor from a hopper to a bucket elevator that captures the product inside the building. ***Note that all of the conveyors are enclosed.*** The bucket elevator transfers the material into a hammermill. The hammermill grounds the wood shavings into fine wood particles. The material is conveyed to an undried material bin and temporarily stored. The undried material is transferred outside the building by way of enclosed conveyor to a Rotary Drum Dryer based on a drying cycle frequency. The Rotary Drum Dryer dries the wood material and transfers the dried material into an affixed cyclone at the end of the dryer. The exhaust stream and fine particulate matter is exhausted to the atmosphere. The bulk of the dried material is transferred back into the building by enclosed conveyor to a dry material bin. From the dry material bin, the material is conveyed through a cooling system and into a high efficiency cyclone. The cyclone will exhaust fine particulate matter to the atmosphere

and the bulk of the cooled material will be conveyed to a pelletizer. After the material is formed into wood pellets, the pellets are bagged and packaged.

TVFP estimates the maximum throughput of material at 12 bone dry tons per hour or 24,960 bone dry tons per year.

Emission Control Description

There are no emission controls at the facility other than a baghouse used to collect sawdust fines from the Planer Mill. The baghouse will contain a horizontal discharge.

Source Parameters

Two natural gas boilers, one rotary drum dryer, one planer mill baghouse, one rotary drum dryer cyclone, one pellet mill cyclone and 14 kiln vents will be modeled as point sources. Lumber Kiln No. 1 will have four vents modeled as point sources. Lumber Kiln No. 2 will have five vents per each kiln room modeled as point sources (10 vents total). The effective diameter for the vents were calculated by using the diameter that was be associated with the same cross-sectional area for a 20 inch by 20 inch vent. The planer mill fugitive sources will be modeled as volume sources. The source parameters are summarized in Table 1. These parameters are based on preliminary design information, and may be updated in the permit application.

Table 1a. Stack Parameters for Point Sources

Source ID	Source Description	Stack Height	Temperature	Exit Velocity	Stack Diameter
		(ft)	(F)	(cf/s)	(in)
Point Sources					
70HP	70 HP Natural Gas Boiler	16	350	48.83	12
250HP	250 HP Natural Gas Boiler	20	350	174.33	19
RD	**Rotary Drum Dryer Cyclone**	**TBD**	**TBD**	**TBD**	**TBD**
PMB	**Planer Mill Bag House**	**TBD**	**TBD**		
PMC	**Pellet Mill Cyclone**	**TBD**	**TBD**	**TBD**	**TBD**
LK1	Lumber Kiln No. 1	25	70	5.60	22.7
LK2	Lumber Kiln No. 1	25	70	5.60	22.7
LK3	Lumber Kiln No. 1	25	70	5.60	22.7
LK4	Lumber Kiln No. 1	25	70	5.60	22.7
LK5	Lumber Kiln No. 2	26	70	5.60	22.7
LK6	Lumber Kiln No. 2	26	70	5.60	22.7
LK7	Lumber Kiln No. 2	26	70	5.60	22.7
LK8	Lumber Kiln No. 2	26	70	5.60	22.7
LK9	Lumber Kiln No. 2	26	70	5.60	22.7
LK10	Lumber Kiln No. 2	26	70	5.60	22.7
LK11	Lumber Kiln No. 2	26	70	5.60	22.7
LK12	Lumber Kiln No. 2	26	70	5.60	22.7
LK13	Lumber Kiln No. 2	26	70	5.60	22.7

LK14	Lumber Kiln No. 2	26	70	5.60	22.7

Note: The facility layout is still being configured. Therefore, several source parameters are…To Be Determined (TBD).

Emissions

The estimated criteria emissions by source and pollutant are shown in Tables 2 and 3. VOC emissions will not be modeled because VOC is regulated as a precursor to ozone and there is no ambient standard for VOC. The emission rates included in this analysis are subject to change. Emissions from the Lumber Kiln heaters are included for informational purposes to show that there impact on the facility-wide aggregate is insignificant. Note that there is a high efficiency cyclone attached to the rotary drum dryer at the end of the drying cycle. The natural gas exhaust stream is vented out through the rotary drum dryer cyclone.

TAP emissions will be estimated and compared to the screening emission limits (EL) specified in the regulation (IDAPA 58.01.01 585 and 586). Modeling will be performed for those TAPs whose emission estimate is greater than the EL. Table 4 show those TAPs with emissions above the EL, for which modeling will be required.

Table 2. Annual Emission Rates in tons/year

Source ID	Source Description	PM_{10}	NO_x	SO_2	CO	VOC
Point Sources						
250HP	Lumber Kiln No. 2 Boiler	0.27	3.49	0.02	2.93	0.19
70HP	Lumber Kiln No. 1 Boiler	0.07	0.98	0.01	0.82	0.1
RD	Rotary Drum Dryer Cyclone (Plus NG exhaust)	**TBD**	2.12	0.02	3.24	12
PMB	Planer Mill Bag House	0.05				
PMC	Pellet Mill Cyclone	**TBD**				
PHOP	Planer Mill Hopper	0.008				
LK1	Lumber Kiln No. 1	0.00675				4.29
LK2	Lumber Kiln No. 1	0.00675				4.29
LK3	Lumber Kiln No. 1	0.00675				4.29
LK4	Lumber Kiln No. 1	0.00675				4.29
LK5	Lumber Kiln No. 2	0.003				2.145
LK6	Lumber Kiln No. 2	0.003				2.145
LK7	Lumber Kiln No. 2	0.003				2.145
LK8	Lumber Kiln No. 2	0.003				2.145
LK9	Lumber Kiln No. 2	0.003				2.145
LK10	Lumber Kiln No. 2	0.003				2.145
LK11	Lumber Kiln No. 2	0.003				2.145
LK12	Lumber Kiln No. 2	0.003				2.145
LK13	Lumber Kiln No. 2	0.003				2.145
LK14	Lumber Kiln No. 2	0.003				2.145
Informational Purposes						
HEATLK1	Lumber Kiln Heaters (2)	0.01	0.12	0.001	0.1	0.01

TBD – To be determined

Table 3. Maximum Hourly Emission Rates in pounds/hour						
Source ID	Source Description	PM_{10}	NO_x	SO_2	CO	VOC
Point Sources						
250HP	Lumber Kiln No. 2 Boiler	0.06	0.8	0	0.67	0.04
70HP	Lumber Kiln No. 1 Boiler	0.02	0.22	0.001	0.19	0.01
RD	Rotary Drum Dryer Cyclone (Plus NG exhaust)	TBD	2.04	0.02	3.12	11.52
PMB	Planer Mill Bag House	0.05				
PMC	Pellet Mill Cyclone	TBD				
LK1	Lumber Kiln No. 1	0.0075				4.125
LK2	Lumber Kiln No. 1	0.0075				4.125
LK3	Lumber Kiln No. 1	0.0075				4.125
LK4	Lumber Kiln No. 1	0.0075				4.125
LK5	Lumber Kiln No. 2	0.003				2.063
LK6	Lumber Kiln No. 2	0.003				2.063
LK7	Lumber Kiln No. 2	0.003				2.063
LK8	Lumber Kiln No. 2	0.003				2.063
LK9	Lumber Kiln No. 2	0.003				2.063
LK10	Lumber Kiln No. 2	0.003				2.063
LK11	Lumber Kiln No. 2	0.003				2.063
LK12	Lumber Kiln No. 2	0.003				2.063
LK13	Lumber Kiln No. 2	0.003				2.063
LK14	Lumber Kiln No. 2	0.003				2.063
Volume Sources						
PHOP	Planer Mill Hopper	0.008				
Informational Purposes						
HEATLK1	Lumber Kiln Heaters (2)	0.002	0.03	0.0002	0.02	0.002
TBD – To be determined						

Table 4. Maximum Hourly Emissions for Toxic Air Pollutants in pounds/hour			
Source ID	Formaldehyde	Arsenic	Cadmium
250HP	5.98 E-04	1.59 E-06	8.77 E-06
LK1	3.63E-03		
LK2	3.63E-03		
LK3	3.63E-03		
LK4	3.63E-03		
LK5	1.81E-03		
LK6	1.81E-03		
LK7	1.81E-03		
LK8	1.81E-03		
LK9	1.81E-03		
LK10	1.81E-03		
LK11	1.81E-03		

LK12	1.81E-03		
LK13	1.81E-03		
LK14	1.81E-03		

Note: TAPS with annual criteria will adjusted for annual hours of operation in final report.

Regulatory Review

Standards and Criteria Levels

Table 5 summarizes applicable criteria including:

- Significant contribution levels (SCL),
- National Ambient Air Quality Standards (NAAQS).

Table 5. Regulatory Standards and Significance Levels

Pollutant	Averaging	NAAQS		SCL
	Period	µg/m³	ppm	(µg/m³)
CO	8-Hour	10,000	9	500
	1-Hour	40,000	35	2,000
NO_2	Annual	100	0.053	1
PM_{10}	Annual	--	--	1
	24-Hour	150	--	5
$PM_{2.5}$	Annual	15	--	--
	24-Hour	35	--	--
SO_2	Annual	80	0.03	1
	24-Hour	365	0.14	5
	3-Hour	1300	0.5	25

Modeled concentrations will be compared to the applicable Idaho significant contribution levels (SCL) shown in Table 5. If the predicted impacts are not significant (that is, less than the SCL), the modeling is complete for that pollutant under that averaging time. If impacts are significant, a more refined analysis will be conducted for demonstration of compliance with the NAAQS. A description of the modeling methodology is presented below.

Dispersion Model

The EPA-approved AERMOD (Version 07026) model will be used. AERMOD is a steady-state plume model that simulates air dispersion based on planetary boundary layer turbulence structure and scaling concepts, including treatment of both surface and elevated sources, and both simple and complex terrain. This model is recommended for short range (< 50 km) dispersion from the source. The model incorporates the ISC Prime algorithm for modeling building downwash, which was developed to address deficiencies in the downwash algorithm previously used in the ISC model. AERMOD is designed to accept input data prepared by two specific pre-processor programs, AERMET and AERMAP. IDEQ adopted the federal mandate requiring the use of the AERMOD dispersion model for permit applications on November 9, 2006. AERMOD will be run with the following options.

- Regulatory default options,
- Direction-specific building downwash,
- Actual receptor elevations and hill height scales,
- Complex/intermediate terrain algorithms.

Building Downwash

Building influences on stacks are considered by incorporating the updated EPA Building Profile Input Program [BPIP-Prime]. The stack heights used in the dispersion modeling will be the actual stack height or Good Engineering Practice (GEP) stack height, whichever is less.

Meteorological Data

AERMET modeling files developed by IDEQ for Boise, Idaho for 1988 to1992 will be used for the TVFP Mountain Home facility. The site characteristics used by IDEQ when processing AERMET are listed in Appendix A. These characteristics include albedo, surface roughness, and Bowen ratio for each season and each 30-degree wind direction sector.

AERMET accepts National Weather Service (NWS) 1-hour surface observations, NWS twice-daily upper air soundings, and data from an on-site meteorological measurement system. These data are processed in three steps. The first step extracts data from the archive data files and performs various quality assessment checks. The second step merges all available data (both NWS and on-site). These merged data are stored together in a single file. The third step reads the merged meteorological data and estimates the boundary layer parameters needed by AERMOD. AERMET writes two files for input to AERMOD: a file of hourly boundary layer parameter estimates and a file of multiple-level (when the data are available) observations of wind speed and direction, temperature, and standard deviation of the fluctuating components of the wind direction.

For PM_{10} and TAPs modeling a combined data file for all five years will be used according to IDEQ request. For all other pollutants a data file for each year will be used.

Ambient Conditions

Background concentrations for this facility will be provided by IDEQ. The completed Table 6 will be included with the final report.

Table 6. Background Criteria Pollutant Concentrations ($\mu g/m^3$)					
Pollutant	**1-hr**	**3-hr**	**8-hr**	**24-hr**	**Annual**
NO_x					
SO_2					
PM_{10}					
CO					

Receptors

The ambient air boundary will be the fenceline. The selection of receptors in AERMOD will be as follows:

- The first run will be a 500-meter coarse grid with a nested Cartesian grid of 100 meter-spaced receptors as follows:
  - The 100-meter grid will extend approximately 1 km around the facility.
  - The 500-meter grid will extend approximately 5 km,
  - Receptors will be placed at 25-meter intervals around the fenceline.
- A second run using a fine receptor grid will be centered on the point of maximum impact and re run using a 50 meter grid spacing, unless the initial maximum occurs on the fenceline.
- Receptor elevations will be calculated by AERMAP as described below.

AERMAP will be run to process terrain elevation data for all sources and receptors using 7.5 minute Digital Elevation Model (DEM) files prepared by the USGS. AERMAP first determines the base elevation at each source and receptor. For complex terrain situations, AERMOD captures the physics of dispersion and creates elevation data for the surrounding terrain identified by a parameter called hill height scale. AERMAP creates hill height scale by searching for the terrain height and location that has the greatest influence on dispersion for each individual source and receptor. Both the base elevation and hill height scale data are produced for each receptor by AERMAP as a file or files which can be directly accessed by AERMOD.

Preliminary Analysis

The preliminary analysis for each pollutant will be conducted as follows:

- If the predicted impacts are not significant (that is, less than the SCL) for each criteria pollutant, the modeling is complete for that pollutant under that averaging time.
- If impacts are significant, a more refined analysis, as described below, will be conducted.

- For NO_x, it will be initially assumed that all NO_x is converted to NO_2. If the resulting concentration exceeds the SCL, then the concentration will be multiplied by the default annual NO_2/NO_x ratio of 0.75 as suggested by EPA and compared to the SCL again. If the resulting concentrations still exceed the SCL, then a refined analysis will be conducted.
- Toxic pollutant impacts will be compared to the acceptable ambient concentrations for non-carcinogens or carcinogens, as applicable.

Refined Analyses – Criteria Pollutants

- Comparison to the Ambient Air Quality Standards
  - For pollutants with concentrations greater than the SCLs, the maximum concentration will be determined and compared to the NAAQS. This maximum concentration will include contributions from the facility, nearby sources, and ambient background concentrations. Background concentrations to be provided by IDEQ will be used to determine concentrations.
  - IDEQ will be contacted to identify nearby sources, if any, that need to be included in the analysis.

Output - Presentation of Results

The results of the air dispersion modeling analyses will be presented as follows:

- A description of modeling methodologies and input data,
- A summary of the results in tabular and, where appropriate, graphical form,
- Modeling files used by AERMOD will be provided with the application on compact disk,
- Any deviations from the methodology proposed in this protocol will be presented.

Appendix A:Boise, ID AERMET Surface parameters

Prepared by IDEQ

Met Site:	surface	Boise	Station #	24131
	u. air	Boise	Station #	24131

Lat	43.565	long	116.22	zone 7
Lat	43.565	long	116.22	zone 7

instrument height: 20 feet

Landuse Assessment			
Sector		**Percentage**	**Sector Degrees**
A	urban	75	300-105
	grassland	0	
	desert shrubland	25	
B	urban	25	105-205
	grassland	50	
	desert shrubland	25	
C	urban	40	205-260
	grassland	10	
	desert shrubland	50	
D	urban	0	260-300
	grassland	20	
	desert shrubland	80	

AERMET Surface Characteristics for Landuse Types					
		Winter	**Spring**	**Summer**	**Fall**
urban	surface albedo	0.25	0.14	0.16	0.18
	bowen ratio	1.50	1.00	2.00	2.00
	surface roughness	0.50	0.50	0.50	0.50
grassland	surface albedo	0.40	0.18	0.18	0.20
	bowen ratio	1.50	0.40	0.80	1.00
	surface roughness	0.00	0.05	0.10	0.01
desert shrub	surface albedo	0.35	0.30	0.28	0.28
	bowen ratio	6.00	3.00	4.00	6.00
	surface roughness	0.20	0.30	0.30	0.30

AERMET Surface Characteristics for Landuse Types					
Sector	**Characteristic**	**Winter**	**Spring**	**Summer**	**Fall**
A	surface albedo	0.275	0.180	0.190	0.205
	bowen ratio	2.625	1.500	2.500	3.000
	surface roughness	0.425	0.450	0.450	0.450
B	surface albedo	0.350	0.200	0.200	0.215
	bowen ratio	2.625	1.200	1.900	2.500
	surface roughness	0.176	0.225	0.250	0.205
C	surface albedo	0.315	0.224	0.222	0.232
	bowen ratio	3.750	1.940	2.880	3.900
	surface roughness	0.300	0.355	0.360	0.351
D	surface albedo	0.360	0.276	0.260	0.264
	bowen ratio	5.100	2.480	3.360	5.000
	surface roughness	0.160	0.250	0.260	0.242

Appendix G

Modeling Results

Air Dispersion Modeling Report for Treasure Valley Forest Products Mountain Home, Idaho Facility

A modeling report has been prepared for the TVFP Mountain Home facility. This modeling report describes the modeling methodology, inputs and results. Any deviations from the modeling protocol are also discussed.

The source parameters and emission rates that were not available when the protocol was written are summarized in the report. Reference information is supplied in Appendix E.

Modeling Methodology

The EPA-approved AERMOD (Version 07026) model was used. AERMOD is a steady-state plume model that simulates air dispersion based on planetary boundary layer turbulence structure and scaling concepts. The model incorporates the ISC Prime algorithm for modeling building downwash, which was developed to address deficiencies in the downwash algorithm previously used in the ISC model. IDEQ adopted the federal mandate requiring the use of the AERMOD dispersion model for permit applications on November 9, 2006. AERMOD was run with the following options.

- Regulatory default options,
- Direction-specific building downwash,
- Actual receptor elevations and hill height scales,
- Complex/intermediate terrain algorithms.

The receptor grid and meteorological data described in the protocol were used.

Modeling Inputs

The source parameters including any revisions are summarized in Table 1 and Table 2. The revised annual, short and toxic emission rates are summarized in Tables 3, 4 and 5.

Table. 1 Stack Parameters					
Source ID	Source Description	Stack Height	Temperature	Exit Velocity	Stack Diameter
		(m)	(K)	(m/s)	(m)
250HP	250 HP Natural Gas Boiler	6.10	450	0.0075	0.48
70HP	70 HP Natural Gas Boiler	4.88	450	0.0053	0.30
RD	Rotary Drum Dryer Cyclone	6.1	533.15	174.72	0.20
PMB	Planer Mill Baghouse	6.10	298	0.0010	0.20
PMC	Pellet Mill Cyclone	8.53	298	171.73	0.20
LK1	Lumber Kiln No. 1	7.62	298	0.0003	0.58
LK2	Lumber Kiln No. 1	7.62	298	0.0003	0.58
LK3	Lumber Kiln No. 1	7.62	298	0.0003	0.58
LK4	Lumber Kiln No. 1	7.62	298	0.0003	0.58
LK5	Lumber Kiln No. 2	7.92	298	0.0003	0.58
LK6	Lumber Kiln No. 2	7.92	298	0.0003	0.58
LK7	Lumber Kiln No. 2	7.92	298	0.0003	0.58
LK8	Lumber Kiln No. 2	7.92	298	0.0003	0.58
LK9	Lumber Kiln No. 2	7.92	298	0.0003	0.58
LK10	Lumber Kiln No. 2	7.92	298	0.0003	0.58
LK11	Lumber Kiln No. 2	7.92	298	0.0003	0.58
LK12	Lumber Kiln No. 2	7.92	298	0.0003	0.58
LK13	Lumber Kiln No. 2	7.92	298	0.0003	0.58
LK14	Lumber Kiln No. 2	7.92	298	0.0003	0.58

Table 2. Volume Source Parameters				
Source ID	Source Description	Release Height	Horizontal Dimension	Vertical Dimension
		(m)	(m)	(m)
PHOP	Planer Mill Hopper	2.44	0.43	1.13
CHIP	Wood Chipper	5.49	0.43	2.55
CHIPSCR	Chipper Screen	6.1	0.28	2.83

Table 3. Annual Emission Rates in Tons/year				
Source ID	**PM_{10}**	**NOx**	**SO_2**	**CO**
250HP	0.2653	3.49	0.0209	2.93
70HP	0.0743	0.98	0.0059	0.82
RD	0.6739	2.12	0.0208	3.24
PMB	0.05			
PMC	1.15			
LK1	0.00674			
LK2	0.00674			
LK3	0.00674			
LK4	0.00674			
LK5	0.00337			
LK6	0.00337			
LK7	0.00337			
LK8	0.00337			
LK9	0.00337			
LK10	0.00337			
LK11	0.00337			
LK12	0.00337			
LK13	0.00337			
LK14	0.00337			
PHOP	0.00780			
CHIP	0.01316			
CHIPSCR	0.00120			

Table 4. Hourly Emission Rates in lbs/hr				
Source ID	**PM_{10}**	**NOx**	**SO_2**	**CO**
250HP	0.06	0.8	0.0048	0.67
70HP	0.02	0.22	0.001	0.19
RD	0.65	2.04	0.02	3.12
PMB	0.05			
PMC	1.11			
LK1	0.00648			
LK2	0.00648			
LK3	0.00648			
LK4	0.00648			
LK5	0.003			
LK6	0.003			
LK7	0.003			
LK8	0.003			
LK9	0.003			
LK10	0.003			
LK11	0.003			
LK12	0.003			
LK13	0.003			
LK14	0.003			
PHOP	0.00750			
CHIP	0.01420			
CHIPSCR	0.00130			

Table 5. Toxic Emission Rates (tons/year)

Source ID	Formaldehyde	Arsenic	Cadmium
250HP	2.62E-03	6.96E-06	3.84E-05
LK1	3.77E-03		
LK2	3.77E-03		
LK3	3.77E-03		
LK4	3.77E-03		
LK5	1.89E-03		
LK6	1.89E-03		
LK7	1.89E-03		
LK8	1.89E-03		
LK9	1.89E-03		
LK10	1.89E-03		
LK11	1.89E-03		
LK12	1.89E-03		
LK13	1.89E-03		
LK14	1.89E-03		

Ambient Conditions

The background concentrations were provided by IDEQ in the Approval Letter dated July 25, 2007. The background concentrations are summarized in Table 6.

Table 6. Background Criteria Pollutant Concentrations (µg/m3)					
Pollutant	**1-hr**	**3-hr**	**8-hr**	**24-hr**	**Annual**
NO_x	-	-	-	-	32
SO_2	-	42	-	26	8
PM_{10}	-	-	-	81	27
CO	10,200	-	3,400	-	-

Results

All criteria pollutants except CO and SO_2 were above the Significant Contribution Levels (SCL). andIDEQ has determined that there are no co-contributing sources within 1kilometer of the source. Therefore, no additional sources are required to be modeled.

The overall modeled impacts are below the Ambient Air Quality Standards. The overall impacts include background concentrations and the maximum modeled concentration by pollutant and averaging period. The toxic pollutants modeled were compared to the acceptable ambient concentrations and all pollutants were below these concentrations except formaldehyde. A T-RACT analysis will be performed for formaldehyde. The modeling results are summarized in Table 7. All modeled impacts occur at the fenceline where the spacing was 25 meters, therefore no additional refined analysis was needed. Ambient air is defined at the property boundary surrounding the facility with a 6-foot fence.

The modeling files are attached on CD included with this PTC application.

Table 7. Modeling Results for Treasure Valley (units µg/m3)

Pollutant	Averaging Period	Criteria	Background	Modeled Conc.	Overall Modeled Conc.	Below Criteria	Year	Location
Criteria Pollutants								
CO	1-HR	40,000	10,200	620.23	10,820.23	Yes	1990	fenceline
CO	8-HR	10,000	3,400	378.26	3,778.26	Yes	1991	fenceline
NO_2	ANNUAL	100	32	55.51	87.51	Yes	1989	fenceline
PM_{10}	24-HR*	150	81.0	26.54	107.54	Yes	all	fenceline
	ANNUAL**	50	27	6.39	33.39	Yes	all	fenceline
SO_2	ANNUAL	150	8	1.29	9.29	Yes	1991	fenceline
	24-HR	365	26	1.70	27.7	Yes	1991	fenceline
	3-HR	1300	42	3.40	45.4	Yes	1991	fenceline
Toxics**								
Arsenic	Annual	2.30E-04	0	0.00014	0.00014	Yes	all	fenceline
Cadmium	Annual	0.0006	0	0.00075	0.00075	Yes	all	fenceline
Formaldehyde	Annual	0.0770	0	0.46667	0.46667	No	all	fenceline

Notes

*The 24-Hour PM10 concentration is for the 6th High

** The toxics and Annual PM10 concentration used a combined 5 year meteorological data file.

Appendix H

T-RACT Analysis

TVFP T-RACT Analysis

Background

This Air Toxics Reasonably Available Control Technology (T-RACT) analysis is in support of the Treasure Valley Forest Products (TVFP) Permit to Construct (PTC) application. This T-RACT is required to demonstrate pre-construction compliance for toxic air pollutants listed in IDAPA 58.01.01.586 and is in conformance with the T-RACT determination procedure in IDAPA 58.01.01.210. T-RACT is defined as:

> "An emission standard based on the lowest emission of toxic air pollutants that a particular source is capable of meeting by the application of control technology that is reasonably available, as determined by the Department, considering technological and economic feasibility. If control technology is not feasible, the emission standard may be based on the application of a design, equipment, work practice or operational requirement, or combination thereof."

Specifically, this T-RACT will review control technologies available for lumber dry kilns and their associated natural gas-fired heat sources. Upon determination and approval of T-RACT, an adjustment by a factor or 10 to the ambient air concentration limit for is available as described 58.01.01.210.12(b).

This T-RACT will summarize the emissions process, the current emissions control that may be applicable for the source, review emissions control cost and cost per ton of formaldehyde removed, if applicable, as required by 58.01.01.210.14.

T-RACT Control Technology Determination

Lumber Kilns

Process Description

TVFP operates two indirect -heated lumber kilns; kilns number 1 and 2. Lumber dry kilns are essentially single story, metal-sided buildings with sliding doors and numerous roof vents. Wood to be dried is stacked on movable carts that can be wheeled into the kiln. After the doors are closed, the air in the kiln is heated, via steam coils or other indirect heat (air room heaters) in the kiln (i.e., an "indirect heated" kiln).

Lumber kiln number 1 consists of a 1,500 foot square building heated to about 130F and heated with natural gas ceiling-hung air-to-air room heaters; and if necessary, a 70 horsepower (HP) natural gas fired boiler. Lumber kiln number 2 is approximately 2,700 square feet in size and is divided into an east and west kiln, each of which is heated to 130-145F by a 250 HP natural gas fired steam boiler. The dried lumber and logs dried by the kilns are planed or finished for further use. The shavings are subsequently used for the production of wood pellets.

Fans located in the kilns circulate the air through the stacked lumber or logs. These fans are periodically reversed in direction to obtain more uniform drying conditions. During the drying process, lumber dry kilns emit water vapor and low concentrations of some pollutants, including formaldehyde. Exhaust is released from numerous roof vents along the tops of the kilns. The size of each roof vent is approximately 20 by 20 inches. Air is exhausted or may be drawn into the kiln from any or all the vents during the lumber drying cycle. The drying cycle may be many days depending on the type of wood product to be dried, the initial moisture content of the wood and other factors.

The numerous roof vents serve as dampers to control the temperature and humidity inside the kiln. At the start of the drying cycle, vents are typically closed. Once the desired initial temperature and moisture levels are reached, the vents can be partially or fully opened to admit ambient air or exhaust kiln air, depending on the fan direction. Kilns are operated according to a set drying schedule appropriate to the wood species and its initial and final target lumber moisture level. The opening and closing of the vents is done according to internal kiln measurements of dry and wet bulb temperatures. Emissions from kilns are very difficult to measure and emissions controls extremely unusual due to the kiln exhaust configuration, operational variation by wood type, the variable and reversing exhaust flows and the very low level of emissions.

Natural Gas-Fired Boilers

Process Description

The facility operates one 250HP natural gas-fired boiler and one 70 HP natural gas-fired backup boiler. In addition, two ceiling-hung room heaters are utilized on kiln number 1. The boilers generate steam for indirect heating of the dry kilns, and the room heaters generate hot air for indirect heating on the number 1 dry kiln. The boilers are further described in the PTC. For this T-RACT, the room heaters were assumed to be equivalent to a small boiler. The largest steam generating boiler associated with the kilns at TVFP is 250 HP. The boiler heat input equivalent is 8.4 million btu per hour (mmBTU/hr). All other units are considerably smaller than the 250 HP boiler. (See application forms, Appendix C of the PTC application).

Control Technology Review

Lumber Kiln RACT/BACT/LAER Clearinghouse (RBLC)

The RBLC is an EPA website established to inventory emissions control devices and pollutant reduction methods for a very broad number of emissions sources. The RBLC data base contains case-specific information on the "Best Available" air pollution technologies that have been required to reduce the emission of air pollutants from stationary sources (e.g., power generation, pulp mills, chemical plants, etc.). This information has been provided by state and local permitting agencies nationwide.

This inventory was searched for the drop-down options "formaldehyde" control for lumber dry kilns. This search resulted in no control technologies listed as existing in the database, (RBLC search results attached)

Lumber Dry Kiln Manufacturer

A major lumber dry kiln manufacturer, Wellons, Inc., Vancouver WA office was contacted with questions regarding control of emissions, including formaldehyde. Mr. Ken Kensley, Environmental Specialist (personal conversation, phone 800 935-5667) was questioned on the control of formaldehyde emissions. The kilns that are present at TVFP were described. Mr. Kensley stated that no emissions controls for formaldehyde, (or other emissions) are installed on Wellons kilns, or are installed on other kilns that he knows of in the industry.

Lumber Kiln Summary

The RBCL, and a major kiln manufacturer were reviewed or contacted for control of formaldehyde emissions form lumber dry kilns. No controls for formaldehyde are known to exist and "no control" is determined to be T-RACT. Since no add-on controls are available for formaldehyde, the economic evaluation of the cost of control and the cost per ton analysis are not applicable.

Boilers RACT/BACT/LAER CLEARINGHOUSE

The RBLC is an EPA website established to inventory emissions control devices and pollutant reduction methods for a very broad number of emissions sources. Boilers, in particular, are well represented in this database. This inventory was searched for the drop-down options "formaldehyde" control for natural gas fired boilers less than 100 mmBTU/hr. The search for the gas-fired small boilers yielded no records, (RBLC attached).

Boilers Summary

The RBLC was reviewed for control of formaldehyde emissions from small natural gas-fired boilers less than or equal to 100 mmBTU/hour. The boilers at TVFP are very small units. No add-on controls are available for formaldehyde, no economic evaluation of the cost of control and the cost per ton is applicable. The T-RACT for the very small TVFP boilers is no control.

Conclusion

A review of a comprehensive regulatory clearinghouse and an equipment manufacturer was performed to establish the T-RACT for the natural gas fired lumber dry kilns and small boilers at TVFP. This review determined that no controls are reasonably available for these units for the control of estimated emissions of formaldehyde. T-RACT is "no-control" for these units based on their design and operation. Since no controls are available for formaldehyde, no economic evaluation of the cost of control and the cost per ton is applicable. This T-RACT evaluation and demonstration of no control allows for an

adjustment in the ambient air cancer risk probability as described in 58.01.01.210.12 (b) and (c):

> "b. Compare the source's or modification's approved T-RACT ambient concentration at the point of compliance for the toxic air pollutant to the amount of the toxic air pollutant that would contribute an ambient air cancer risk probability of less than one to one hundred thousand (1:100,000) (which amount is equivalent to ten (10) times the applicable acceptable ambient concentration listed in Section 586).
>
> c. If the source's or modification's approved T-RACT ambient concentration at the point of compliance is less than or equal to the amount of the toxic air pollutant that would contribute an ambient air cancer risk probability of less than one to one hundred thousand (1:100,000), no further procedures for demonstrating preconstruction compliance will be required for that toxic air pollutant as part of the application process."

The allowed adjustment of the cancer risk factor allows TVFP to demonstrate compliance with the formaldehyde modeled ambient air concentration.

Attachments:

Lumber Dry Kiln RBLC search results (2 pgs)
Small Boiler RBLC search results (2 pgs)

Lumber Kilns (1)

http://cfpub.epa.gov/rblc/cfm/basicsearch.cfm?lang=en
Last updated on Tuesday, July 31st, 2007.

Technology Transfer Network
Clean Air Technology Center -
RACT/BACT/LAER Clearinghouse

RBLC Basic Search

Choose criteria from one or more of the groups listed below. You don't need to fill in all spaces. Default values are indicated.

Run search now | Reset form

Show All | Show 150 records per page

Other Se

Permit D
Find Lowes
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Scan All
Standard S
Advanced S

Help **PERMIT DATE**

From : 1/1/1997 (MM/DD/YYYY)

To: 7/31/2007 (MM/DD/YYYY)

Default = Last 10 years. Permits go back to 1970.

Help **PROCESS INFORMATION**

Process Type:

30.800 - Wood Lumber Kilns

Process Name Contains:

A blank box finds all processes under type specified above.

Help **POLLUTANT NAME**

Formaldehyde

Help **CORPORATE/COMPANY OR FACILITY NAME CONTAINS:**

A blank box finds all company and plant names.

Help **FACILITY STATE**

All States

Show All Show 150 records per page

Run search now Reset form

Lumber kilns (2)

http://cfpub.epa.gov/rblc/cfm/basicSearchResult.cfm?RequestTimeout=500&CFID=1145072&CFTOKEN=75788583&jsessionid=c2305941fbc038378070TR6630c230

Last updated on Tuesday, July 31st, 2007.

Technology Transfer Network
Clean Air Technology Center - RACT/BACT/LAER Clearinghouse

RBLC Search Results

List of Reports

No matching RBLC facilities found.

Criteria used for search:

Permit Date Between 1/1/1997 And 7/31/2007
And Process Type Contains "30.8"
And Pollutant Name is Formaldehyde

You should go back to the standard search form and respecify the criteria you used or select ano the database to search.

Boilers (1)

http://cfpub.epa.gov/rblc/cfm/basicsearch.cfm?lang=en
Last updated on Wednesday, August 1st, 2007.

Technology Transfer Network
Clean Air Technology Center -
RACT/BACT/LAER Clearinghouse

RBLC Basic Search

Choose criteria from one or more of the groups listed below. You don't need to fill in all spaces. Default values are indicated.

Run search now | Reset form

○ Show All ◉ Show 150 records per page

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Standard S
Advanced S

Help **PERMIT DATE**

From : 1/1/1997 (MM/DD/YYYY)

To: 8/1/2007 (MM/DD/YYYY)

Default = Last 10 years. Permits go back to 1970.

Help **PROCESS INFORMATION**

Process Type:

13.000 - Commercial/Institutional-Size Boilers/Furnaces (≤100 million BTU/H)

Process Name Contains:

A blank box finds all processes under type specified above.

Help **POLLUTANT NAME**

Formaldehyde

Help **CORPORATE/COMPANY OR FACILITY NAME CONTAINS:**

A blank box finds all company and plant names.

Help **FACILITY STATE**

All States

Show All Show 150 records per page

Run search now Reset form

Boilers (2)

http://cfpub.epa.gov/rblc/cfm/basicSearchResult.cfm?RequestTimeout=500&CFID=1171515&CFTOKEN=15448382&jsessionid=663087a83d366f80645QTR6630c230

Last updated on Wednesday, August 1st, 2007.

Technology Transfer Network
Clean Air Technology Center - RACT/BACT/LAER Clearinghouse

RBLC Search Results

List of Reports

No matching RBLC facilities found.

Criteria used for search:

Permit Date Between 1/1/1997 And 8/1/2007
And Process Type Contains "13."
And Pollutant Name is Formaldehyde

You should go back to the standard search form and respecify the criteria you used or select ano the database to search.

Appendix I

Regulatory Applicability

State and Federal Regulation Applicability

The following sections address air quality regulatory compliance requirements for the TVFP facility. As detailed below, the sources comply with all applicable Idaho air quality regulations codified in IDAPA 58.01.01, as well as US EPA Code of Federal Regulations (CFR).

Federal Regulations

New Source Review (NSR) and PSD Applicability - 40 CFR Parts 51 and 52

In accordance with EPA and IDAPA 58.01.01.205 rules, the proposed facility would be required to submit a construction permit application subject to the requirements of NSR if it is determined to be a major source or a major modification. The requirements of NSR vary in two substantial ways, depending on whether the proposed facility will be located in an area that is in attainment of NAAQS.

New Source Review (NSR)

Prevention of Significant Deterioration (PSD) is the portion of NSR that applies to pollutants that are in attainment or non-attainment of NAAQS, or are unclassifiable. Elmore County is classified as attainment or unclassifiable for the criteria pollutants NO_X, SO_2, ozone, lead, and PM_{10}. Therefore, new or modified air emission sources in Elmore County are potentially subject to PSD review for these pollutants, depending on the proposed facility's major source status and on the emission rates of NO_X, SO_2, VOC, and PM_{10}.

A source is considered to be major if:

1. It is included in a list of 28 specific source categories and its potential to emit any of the NSR-regulated pollutants exceeds 100 tons per year (tpy), or
2. If its PTE exceeds 250 tpy for any other source category.

As mentioned previously, the TVFP Mountain Home facility is defined as a fuel conversion plant. Therefore, it is one of the 28 listed source categories. Therefore, this facility is characterized as having a 100 ton per year major source threshold for PSD applicability. However, the proposed facility is not expected to have a PTE greater than 100 tpy for CO, NO_X, VOC, and PM_{10}. Therefore, the facility is not a major source and will not need to undergo an attainment NSR. (See emission calculations in Appendix E).

New Source Performance Standards - 40 CFR Part 60

There are no NSPS regulations that apply to the wood products operation at the TVFP Mountain Home facility.

National Emission Standards for Hazardous Air Pollutants - 40 CFR Part 63

Section 112 of the Clean Air Act (CAA) Amendments relates to the release of air toxic contaminants. The requirements of CAA Section 112(g) or (j) are not applicable because the

facility is not a major source of hazardous air pollutants (HAP) (40 CFR 63.40(b)). Part 63 NESHAPS applies to major sources of HAP, defined as PTE > 10 tpy for any single HAP or PTE > 25 tpy for total HAP. HAP emissions from the facility will be below these threshold amounts.

Title V Operating Permit Program- 40 CFR Part 70

The CAA requires states to develop an operating permit program (40 CFR Part 70) for major sources. As described above, the Mountain Home facility is not a major source.

Accidental Release Prevention Program- 40 CFR Part 68

The Mountain Home facility will not use any chemicals that will make the facility subject to the Accidental Release Prevention Program.

Compliance Assurance Monitoring (CAM) - 40 CFR Part 64

The Mountain Home facility will not be subject to the CAM rule.

IDAPA Regulations

IDAPA 58.01.01.123
CERTIFICATION OF DOCUMENTS

> "All documents, including but not limited to, application forms for permits to construct, application forms for operating permits, progress reports, records, monitoring data, supporting information, requests for confidential treatment, testing reports or compliance certifications submitted to the Department shall contain a certification by a responsible official. The certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete."

IDAPA 58.01.01.124
TRUTH, ACCURACY AND COMPLETENESS OF DOCUMENTS.

> "All documents submitted to the Department shall be truthful, accurate and complete."

IDAPA 58.01.01.125
FALSE STATEMENTS

> "No person shall knowingly make any false statement, representation, or certification in any form, notice, or report required under any permit, or any applicable rule or order in force pursuant thereto."

IDAPA 58.01.01.130
STARTUP, SHUTDOWN, SCHEDULED MAINTENANCE, SAFETY MEASURES, UPSET AND BREAKDOWN.

1. 250 Hp Boiler
2. 70 Hp Boiler
3. Rotary Drum Dryer
4. Lumber Kiln No. 1 Heaters
5. Lumber Kiln No. 1
6. Lumber Kiln No. 2
7. Planer Mill Baghouse
8. Pellet Mill Cyclone

If an excess emission event occurs during startup, shutdown, scheduled maintenance, safety measures, upset or breakdown, TVFP will comply with IDAPA 58.01.01.130 through 58.01.01.136.

In the event of an upset or breakdown, the malfunctioning unit would be immediately shut down. This includes any malfunction that could create excess emissions.

IDAPA 58.01.01.156
TOTAL COMPLIANCE

> "Where more than one (1) section of these rules applies to a particular situation, all such rules must be met for total compliance, unless otherwise provided for in these rules."

IDAPA 58.01.01.157
TEST METHODS AND PROCEDURES

1. 250 Hp Boiler
2. 70 Hp Boiler
3. Rotary Drum Dryer
4. Lumber Kiln No. 1 Heaters
5. Lumber Kiln No. 1
6. Lumber Kiln No. 2
7. Planer Mill Baghouse
8. Pellet Mill Cyclone

If an emission test is required, TVFP will adhere to procedures outlined in IDAPA 58.01.01.157.

IDAPA 58.01.01.161
TOXIC SUBSTANCES

1. 250 Hp Boiler
2. 70 Hp Boiler
3. Rotary Drum Dryer
4. Lumber Kiln No. 1 Heaters
5. Lumber Kiln No. 1
6. Lumber Kiln No. 2

> "Any contaminant which is by its nature toxic to human or animal life or vegetation shall not be emitted in such quantities or concentrations as to alone, or

in combination with other contaminants, injure or unreasonably affect human or animal life or vegetation."

See emission calculations in Appendix E and modeling results in Appendix G.

IDAPA 58.01.01.200
PROCEDURES AND REQUIREMENTS FOR PERMITS TO CONSTRUCT

1. 250 Hp Boiler
2. 70 Hp Boiler
3. Rotary Drum Dryer
4. Lumber Kiln No. 1 Heaters
5. Lumber Kiln No. 1
6. Lumber Kiln No. 2
7. Planer Mill Baghouse
8. Pellet Mill Cyclone
9. Pellet Mill Hopper
10. Planer Mill Chipper
11. Planer Mill Chip Screen

TVFP will follow the procedures and requirements outlined under IDAPA 58.01.01.200 for obtaining a Permit to Construct.

IDAPA 58.01.01.210
DEMONSTRATION OF PRECONSTRUCTION COMPLIANCE WITH TOXIC STANDARDS

"In accordance with Subsection 203.03, the applicant shall demonstrate preconstruction compliance with Section 161 to the satisfaction of the Department. The accuracy, completeness, execution and results of the demonstration are all subject to review and approval by the Department."

See emission calculations in Appendix E and modeling results in Appendix G.

IDAPA 58.01.01.213
PRE-PERMIT CONSTRUCTION

1. 250 Hp Boiler
2. 70 Hp Boiler
3. Rotary Drum Dryer
4. Lumber Kiln No. 1 Heaters
5. Lumber Kiln No. 1
6. Lumber Kiln No. 2
7. Planer Mill Baghouse
8. Pellet Mill Cyclone
9. Pellet Mill Hopper
10. Planer Mill Chipper
11. Planer Mill Chip Screen

TVFP will comply with procedures and regulations outlined in this section in order to obtain the 15-Day PTC.

IDAPA 58.01.01.213.02. Permit to Construct Procedures for Pre-Permit Construction

IDAPA 58.01.01.213.02.a Informational Meeting
"Within ten (10) days after the submittal of the pre-permit construction approval application, the owner or operator shall hold an informational meeting in at least one (1) location in the region in which the stationary source or facility is to be located. The informational meeting shall be made known by notice published at least ten (10) days before the meeting in a newspaper of general circulation in the county(ies) in which the stationary source or facility is to be located. A copy of such notice shall be included in the application."

A copy of the Public Notice is provided in Appendix B.

IDAPA 58.01.01.220 General Exemption Criteria For Permit to Construct Exemptions

IDAPA 58.01.01.221 Category I Exemption

"No permit to construct is required for a source that satisfies the criteria set forth in Section 220 and the following:"

IDAPA 58.01.01.221.01 Below Regulatory Concern.

"The maximum capacity of a source to emit an air pollutant under its physical and operational design considering limitations on emissions such as air pollution control equipment, restrictions on hours of operation and restrictions on the type and amount of material combusted, stored or processed shall be less than ten percent (10%) of the significant emission rates set out in the definition of significant at Section 006."

IDAPA 58.01.01.300 PROCEDURES AND REQUIREMENTS FOR TIER I OPERATING PERMITS

"The purposes of Sections 300 through 399 are to establish requirements and procedures for the issuance of Tier I operating permits."

Not applicable. TVFP will be classified as a minor source facility with total potential emissions less than 100 tons per year.

IDAPA 58.01.01.577
AMBIENT AIR QUALITY STANDARDS FOR SPECIFIC AIR POLLUTANTS (PM-10, SOx, NOx, CO, Pb)

IDAPA 58.01.01.577.01 **PM-10 Standards**

1. 250 Hp Boiler
2. 70 Hp Boiler
3. Rotary Drum Dryer
4. Lumber Kiln No. 1 Heaters
5. Lumber Kiln No. 1
6. Lumber Kiln No. 2
7. Planer Mill Baghouse

8. Pellet Mill Cyclone
9. Pellet Mill Hopper
10. Planer Mill Chipper
11. Planer Mill Chip Screen

IDAPA 58.01.01.577.01.a Primary and Secondary Standards

IDAPA 58.01.01.577.01.a.i Annual Standard
"Fifty (50) micrograms per cubic meter, as an annual arithmetic mean -- never expected to be exceeded in any calendar year."

IDAPA 58.01.01.577.01.a.ii 24-hr Standard
"One hundred fifty (150) micrograms per cubic meter as a maximum twenty-four (24) hour concentration -- never expected to be exceeded more than once in any calendar year."

IDAPA 58.01.01.577.02 **Sulfur Oxides (Sulfur Dioxide)**
1. 250 Hp Boiler
2. 70 Hp Boiler
3. Rotary Drum Dryer
4. Lumber Kiln No. 1 Heaters

IDAPA 58.01.01.577.02.a Primary Standards

IDAPA 58.01.01.577.02.a.i Annual Standard
"Eighty (80) micrograms per cubic meter (0.03 ppm), as an annual arithmetic mean -- not to be exceeded in any calendar year."

IDAPA 58.01.01.577.02.a.ii 24-hr Standard
"Three hundred sixty-five (365) micrograms per cubic meter (0.14 ppm), as an maximum twenty-four (24) hour concentration -- not to be exceeded more than once in any calendar year."

IDAPA 58.01.01.577.02.b Secondary Standard
"Secondary air quality standards are one thousand three hundred (1,300) micrograms per cubic meter (0.50 ppm), as a maximum three (3) hour concentration -- not to be exceeded more than once in any calendar year."

IDAPA 58.01.01.577.04 **Nitrogen Dioxide**
1. 250 Hp Boiler
2. 70 Hp Boiler
3. Rotary Drum Dryer
4. Lumber Kiln No. 1 Heaters

"Primary and secondary air quality standards are one hundred (100) micrograms per cubic meter (0.05 ppm) -- annual arithmetic mean."

IDAPA 58.01.01.577.05 **Carbon Monoxide Primary and Secondary Standards**
1. 250 Hp Boiler
2. 70 Hp Boiler

3. Rotary Drum Dryer
4. Lumber Kiln No. 1 Heaters

IDAPA 58.01.01.577.01.a
"Eight (8) Hour Standard. Ten (10) milligrams per cubic meter (9 ppm) -- maximum eight (8) hour concentration not to be exceeded more than once per year."

IDAPA 58.01.01.577.01.b
"One (1) Hour Standard. Forty (40) milligrams per cubic meter (35 ppm) -- maximum one (1) hour concentration not to be exceeded more than once per year."

IDAPA 58.01.01.577.7 **Lead**

1. 250 Hp Boiler
2. 70 Hp Boiler
3. Lumber Kiln No. 1 Heaters

"Primary and secondary standards for lead and its compounds, measured as elemental lead, are one and one-half (1.5) micrograms per cubic meter (1.5 ug/m3), as a quarterly arithmetic mean -- not to be exceeded in any quarter of any calendar year."

IDAPA 58.01.01.578
DESIGNATION OF ATTAINMENT, UNCLASSIFIABLE, AND NONATTAINMENT AREAS

1. 250 Hp Boiler
2. 70 Hp Boiler
3. Rotary Drum Dryer
4. Lumber Kiln No. 1 Heaters
5. Lumber Kiln No. 1
6. Lumber Kiln No. 2
7. Planer Mill Baghouse
8. Pellet Mill Cyclone

Elmore County is classified as attainment or unclassifiable for the criteria pollutants NO_X, SO_2, ozone, lead, and PM_{10}. There are no Class I areas within 10 kilometers of the facility.

IDAPA 58.01.01.590
NEW SOURCE PERFORMANCE STANDARDS

1. Rotary Drum Dryer

The proposed source is not applicable under 40 CFR Part 60.

IDAPA 58.01.01.591
NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS

1. 250 Hp Boiler
2. 70 Hp Boiler
3. Rotary Drum Dryer
4. Lumber Kiln No. 1 Heaters
5. Lumber Kiln No. 1
6. Lumber Kiln No. 2

The proposed sources are not regulated under 40 CFR Part 61 and 40 CFR Part 63, since the TVFP facility is below threshold limits.

IDAPA 58.01.01.625
VISIBLE EMISSIONS

1. 250 Hp Boiler
2. 70 Hp Boiler
3. Rotary Drum Dryer
4. Lumber Kiln No. 1 Heaters
5. Lumber Kiln No. 1
6. Lumber Kiln No. 2
7. Planer Mill Baghouse
8. Pellet Mill Cyclone

> "A person shall not discharge any air pollutant into the atmosphere from any point of emission for a period or periods aggregating more than three (3) minutes in any sixty (60) minute period which is greater than twenty percent (20%) opacity as determined by this section."

It is proposed that TVFP conduct monthly inspections of the boilers, drum dryer, dry kilns, planer mill baghouse, and pellet mill cyclone. The inspection will be conducted during daylight hours and under normal operating conditions. The inspection will consist of a see/no see evaluation. If any visible emissions are present from the point of emission, appropriate corrective action will be taken as expeditiously as practicable, or a Method 9 opacity test, in accordance with the procedures outlined in IDAPA 58.01.01.625, will be performed. Records of the results of each monthly visible emission inspection and each opacity test, when conducted, will be maintained. The records will include, at a minimum, the date and results of each inspection and test, and a description of the following: the assessment of the conditions existing at the time visible emissions are present (if observed), any corrective action taken in response to the visible emissions, and the date corrective action was taken.

IDAPA 58.01.01.650
RULES FOR CONTROL OF FUGITIVE DUST

1. Material Handling (for example, sawdust and shaving bins, and hopper)

TVFP will take all reasonable precautions to prevent the generation of fugitive dust as outlined under IDAPA 58.01.01.650-651.

IDAPA 58.01.01.651
GENERAL RULES

1. Material Handling (for example, sawdust and shaving bins, and hopper)

> "All reasonable precautions shall be taken to prevent particulate matter from becoming airborne. In determining what is reasonable, consideration will be given to factors such as the proximity of dust emitting operations to human habitations and/or activities and atmospheric conditions which might affect the movement of particulate matter. Some of the reasonable precautions may include, but are not limited to, the following:"
>
> IDAPA 58.01.01.651.01 Use Of Water or Chemicals
> "Use, where practical, of water or chemicals for control of dust in the demolition of existing buildings or structures, construction operations, the grading of roads, or the clearing of land."
>
> IDAPA 58.01.01.651.02 Application Of Dust Suppressants
> "Application, where practical, of asphalt, oil, water or suitable chemicals to, or covering of dirt roads, material stockpiles, and other surfaces which can create dust."
>
> IDAPA 58.01.01.651.03 Use Of Control Equipment
> "Installation and use, where practical, of hoods, fans and fabric filters or equivalent systems to enclose and vent the handling of dusty materials. Adequate containment methods should be employed during sandblasting or other operations."
>
> IDAPA 58.01.01.651.04 Covering Of Trucks
> "Covering, when practical, open bodied trucks transporting materials likely to give rise to airborne dusts."
>
> IDAPA 58.01.01.651.05 Paving
> "Paving of roadways and their maintenance in a clean condition, where practical."
>
> IDAPA 58.01.01.651.06 Removal Of Materials
> "Prompt removal of earth or other stored material from streets, where practical."

TVFP will monitor and maintain records of the frequency and the method(s) used (as an example water) to reasonably control fugitive emissions. A quarterly facility-wide inspection will be conducted of the sources of fugitive emissions during daylight hours and under normal operating conditions to ensure that the methods used to reasonably control fugitive emissions are effective. If fugitive emissions are not being reasonably controlled, TVFP will undertake corrective action as expeditiously as practicable. Records of the results of each quarterly fugitive emissions inspection will be maintained. The records will include, at a minimum, the date of

each inspection and a description of the following: the facilities assessment of the conditions existing at the time fugitive emissions were present (if observed), any corrective action taken in response to the fugitive emissions, and the date the corrective action was taken.

Records will be maintained of all fugitive dust complaints received. Appropriate corrective action will be taken as expeditiously as practicable after receipt of a valid complaint. The records will include, at a minimum, the date that each complaint was received and a description of the following: the complaint, the facilities assessment of the validity of the complaint, any corrective action taken, and the date the corrective action was taken.

IDAPA 58.01.01.675
FUEL BURNING EQUIPMENT -- PARTICULATE MATTER

1. 250 Hp Boiler
2. 70 Hp Boiler
3. Rotary Drum Dryer
4. Lumber Kiln No. 1 Heaters

TVFP will adhere to guidelines under IDAPA 58.01.01.675 through IDAPA 58.01.01.681 with regards to particulate emissions for fuel burning equipment.

IDAPA 58.01.01.676
STANDARDS FOR NEW SOURCES

1. Rotary Drum Dryer

   "A person shall not discharge into the atmosphere from any fuel burning equipment with a maximum rated input of ten (10) million BTU's per hour or more, and commencing operation on or after October 1, 1979, particulate matter in excess of the concentrations shown in the following table:"

Fuel Type	Allowable Particulate gr/dscf	Emissions Oxygen
Gas	0.015	3%

This standard only applies to the TVFP drum dryer because the maximum heat input rating is 35 million BTU per hour. See Appendix E, PM Calculation -IDAPA Rule 676.

IDAPA 58.01.01.700
PARTICULATE MATTER -- PROCESS WEIGHT LIMITATIONS

TVFP will comply with process weight limitations outlined under IDAPA 58.01.01.700 through IDAPA 58.01.01.703.

IDAPA 58.01.01.700.02 Minimum Allowable Emission

"Notwithstanding the provisions of Sections 701 and 702, no source shall be required to meet an emission limit of less than one (1) pound per hour."

IDAPA 58.01.01.700.03.b Averaging Period – Worst Case
"One (1) hour of operation representing worst-case conditions for the emissions of particulate matter."

IDAPA 58.01.01.701
PARTICULATE MATTER -- NEW EQUIPMENT PROCESS WEIGHT LIMITATIONS

1. Planer Mill Baghouse
2. Pellet Mill Cyclone
3. Planer Mill Hopper
4. Bucket Elevator

IDAPA 58.01.01.701.01 General Restrictions
"No person shall emit into the atmosphere from any process or process equipment commencing operation on or after October 1, 1979, particulate matter in excess of the amount shown by the following equations, where E is the allowable emission from the entire source in pounds per hour, and PW is the process weight in pounds per hour."

IDAPA 58.01.01.701.01.a PW less than 9,250 pounds per hour
$E = 0.045(PW)0.60$

IDAPA 58.01.01.701.01.b PW greater than 9,250 pounds per hour
$E = 1.10(PW)0.25$

The PM process weight limitations comply with the applicable IDAPA standard. See Appendix E, Process weight calculations – IDAPA Rule 701.

IDAPA 58.01.01.775
RULES FOR CONTROL OF ODORS

TVFP will follow the guidelines set under IDAPA 58.01.01.775 through IDAPA 58.01.01.776 to control odorous emissions from all sources for which no gaseous emission control rules apply.

IDAPA 58.01.01.776
GENERAL RULES

IDAPA 58.01.01.776.01 General Restrictions
"No person shall allow, suffer, cause or permit the emission of odorous gases, liquids or solids into the atmosphere in such quantities as to cause air pollution."